

## Claims

- 1 1. A circuit to route signals, comprising:
  - 2 A plurality of input pins to receive input signals;
  - 3 A plurality of output pins to transmit output signals;
  - 4 A plurality of connectors each wired to exactly one of the plurality of input pins and the
  - 5 plurality of output pins;
  - 6 A plurality of switches, each possessing three poles;
  - 7 A first plurality of wires electrically connecting exactly one input pin to a first pole of
  - 8 exactly one switch;
  - 9 A second plurality of wires each electrically connecting exactly one output pin to a
  - 10 second pole of exactly one switch;
  - 11 A third plurality of wires each electrically connecting exactly one connector to the
  - 12 common pole of exactly one switch;
  - 13 A switch matrix to transmit signals from at least one of said input pins to at least one of
  - 14 said output pin.
- 1 2. The circuit of claim 1, wherein the circuit is to be housed in a single frame.
- 1 3. The circuit of claim 1, wherein said circuit is to receive and transmit video signals.

- 1 4. The circuit of claim 1, wherein said circuit is to receive and transmit audio signals.
- 1 5. The circuit of claim 1, wherein said circuit is to receive and transmit data signals.
- 1 6. The method of claim 1, wherein said circuit has two connectors connected to each input  
2 pin in a loop-through configuration.
- 1 7. The method of claim 1, wherein said circuit has output pins that can be connected to more  
2 than one connector.
- 1 8. A method of selectively connecting one of a plurality of input receiving wires and one of  
2 a plurality of output transmitting wires to one of a plurality of selectable connectors in a signal  
3 routing circuit, the method comprising:  
4 retrieving data representing a number of non-selectable input connectors and non-  
5 selectable output connectors and selectable input/output connectors from the circuit;  
6 receiving data through an interface from a user representing a number of desired input  
7 connectors each to be connected to an input receiving wire;  
8 comparing said number of desired input connectors to the sum of said non-selectable  
9 input connectors and a plurality of selectable input/output connectors;  
10 repeating said receiving and comparing until the sum of said non-selectable input  
11 connectors and the plurality of selectable input/output connectors equals or exceeds the number  
12 of said desired input connectors;

13 calculating the number of available output connectors by adding the number of non-  
14 selectable input connectors, non-selectable output connectors, and selectable input/output  
15 connectors together and subtracting the number of desired input connectors therefrom;  
16 displaying the number of available output connectors and desired input connectors using  
17 a display mechanism;  
18 repeatedly connecting a selectable input/output connector to an input receiving wire until  
19 the sum of said non-selectable input connectors and the selectable input/output connectors  
20 connected to an input receiving wire equals the number of said desired input connectors;  
21 repeatedly connecting all selectable input/output connector not so connected to an input  
22 receiving wire to an output transmitting wire.

1 9. The method of claim 8, wherein said circuit receives and transmits video signals.

1 10. The method of claim 8, wherein said circuit receives and transmits audio signals.

1 11. The method of claim 8, wherein said circuit receives and transmits data signals.

1 12. The method of claim 8, wherein said circuit has two connectors connected to each input  
2 pin in a loop-through configuration.

1 13. The method of claim 8, wherein said circuit has output pins that may be connected to  
2 more than one connector.

1 14. A circuit routing signals, comprising:  
2 a plurality of input pins to receive input signals;  
3 a plurality of output pins to transmit output signals;  
4 a plurality of connectors wired to exactly one of the plurality of input pins and one of the  
5 plurality of output pins;  
6 a switching apparatus;  
7 a first plurality of wires each electrically connecting exactly one input pin to a first pole  
8 of the switching apparatus;  
9 a second plurality of wires each electrically connecting exactly one output pin to a second  
10 pole of the switching apparatus;  
11 a third plurality of wires each electrically connecting exactly one connector to a common  
12 pole of the switching apparatus;  
13 a matrix circuit to transmit signals in one of from a subset of the input pins to a subset of  
14 the output pins, from a subset of the input pins to all of the output pins, and from all of the  
15 input pins to a subset of the output pins.

1 15. A routing circuit comprising:  
2 a crosspoint matrix having a plurality of input pins and output pins, said crosspoint matrix  
3 connecting ones of said input pins to ones of said output pins;  
4 at least one input connector connected to one of said output pins;  
5 at least one output connector connected to one of said output pins;  
6 at least one switchable connector connected to one of said input pins and output pins via a  
7 switch.